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Psychopathology Following Interpersonal Violence: A Comparison of Risk Factors in Older and Younger Adults

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A randomly selected sample of 549 women age 55 years and older and 2,669 women age 18–34 years was interviewed via telephone to determine prevalences of physical and sexual assault, posttraumatic stress disorder (PTSD) symptomatology, and depression. Prevalences of sexual and physical assaults were lower in older compared to younger women. In addition, given a trauma, prevalences and proportionate risk of posttraumatic psychopathology and depression were also lower for older, relative to younger women. Specifically, multivariate analyses revealed that sexual assault predicted only PTSD avoidance in older adults, but all forms of PTSD symptomatology and depression in younger adult women. Similarly, physical assault predicted only PTSD re-experiencing symptoms in older women, but all forms of PTSD symptoms and depression in younger women. Self-reported health status was not associated with any increased risk of psychopathology, and low income predicted increased avoidance and depression only in younger women.

KEY WORDS: older adults; elderly; crime; victim; PTSD; risk factors; depression; sexual assault.

Risk factors for psychopathology following interpersonal violence may vary as a function of age. This may be a result of either cultural (i.e., learning history) or biological differences across age groups, or most likely, some interaction between the two. Some research on the prevalence and effects of trauma on older adults exists in the areas of elder abuse (Floyd, 1984; Lachs and Pillemer, 1995; Pillemer and Finkelhor, 1988; Wolf, 1988, 1992), disaster (Livingston *et al*., 1992, 1994), combat (Guerrero and Crocq, 1994; Hilton, 1997; Summers *et al*., 1996), and the Holocaust (Falk *et al*., 1994). However, very little data are available that describe older adult responses to criminal victimization (e.g., physical and sexual assault) or risk factors that mediate these responses (Gesino *et al*., 1982; Simpson *et al*., 1996).

Negative emotional sequelae to interpersonal violence in younger adults frequently include posttraumatic stress disorder (PTSD; Norris, 1992) and depression (Kilpatrick and Resnick, 1993). Of particular interest is whether variables associated with developing these disorders in younger adults carry the same levels of risk for older adults. Risk factor potency is not the only important area of consideration, however. Prevalence of a risk factor is also

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central to determining its relevance. For example, an exceedingly rare factor in older adults that is very common in younger adults might pose an equal risk across age groups, but is far more relevant to younger individuals. Relatedly, attention to differences in prevalence of the disorder with which the risk factor is associated is also warranted when delineating importance of risk factors to the general population.

Early investigations of natural disaster victims found that older adults fared psychologically better than younger adults (Bell, 1978; Bolin and Klenow, 1983; Huerta and Horton, 1978; Kilijanek and Drabek, 1979). More recently, Geonjian *et al*. (1994) reported that elderly earthquake survivors evinced fewer intrusive symptoms than their younger counterparts, and Kato *et al*. (1996) noted that older adults exhibited fewer symptoms of depression and posttraumatic stress following a natural disaster than younger adults.

The finding that older adults may be less prone to emotional disturbance following traumatic exposure is not limited to natural disaster victims. Fontana and Rosenheck (1994) evaluated the effects of age on symptoms of posttraumatic stress in a large sample of World War II, Korean War, and Vietnam War veterans while statistically controlling for the confounding effects of cohort membership and degree of traumatic exposure. These researchers found significant negative associations between age and indices of PTSD and other psychiatric symptoms, suggesting that advanced age may buffer against psychological difficulties that often accompany exposure to traumatic stressors. Other researchers have also observed this apparent resilience among older combat veterans (Hyer *et al*., 1995), and victims of other forms of trauma, including sexual assault (Norris, 1992). Apart from life stress investigations (e.g., Burnette and Mui, 1994; Glass *et al*., 1997), very little risk factor research linking traumatic events to psychopathology in older adults has been completed.

We conducted this study to determine relevance of risk factors for psychopathology in older adults as determined by the two criteria of relevance outlined above: prevalence of the risk factor and potency of the risk factor. As such, this study identified (a) rates at which selected risk factors such as sexual assault, physical assault, poor health status, and recent trauma occur in older and younger women, and (b) relative risk associated with each of these factors. In order to increase contextual relevance of findings, this study also identified (c) age-based differences in prevalence and risk of psychopathology associated with these risk factors.

METHODS

Participants

Participants were enrolled in the National Women's Study (NWS), a longitudinal research project in which a national household probability sample of 4,009 adult women was randomly selected by Random Digit Dialing methodology and interviewed by telephone. Of the total, 2,009 were a national household probability sample of U.S. female adults (age 18 and older), and 2,000 were an oversample of women aged 18–34 years. This oversample was incorporated into the study design to maximize the likelihood of including participants who had experienced assault or substance use (Resnick *et al*., 1993, provide demographic characteristics of the original Wave I study sample, weighted by age and race to reflect national averages of these variables. In addition, detailed information on the sampling methodology is also provided in that paper).

Only data from the Wave I interviews of women aged 18–35 and 55 and older are considered here. Considering the older adult subsample ($N = 549$), the mean age of older adult participants was 67.0 years ($SD = 7.78$). Eighty-eight percent were White; 6.7% were African American; 2.6% were of at least partial Hispanic origin; 2.0% were Native American; and approximately 3.5% were members of other ethnic groups or chose not to answer the question. (Note that the classification of "Hispanic" was not mutually exclusive of other ethnic groups.) With respect to highest educational achievement, 28.1% did not graduate from high school; 36.2% were high school graduates; and 8.2% were college graduates.

Considering the younger adult subsample ($N = 2{,}669$), the mean age of younger participants was 27.8 years ($SD = 4.66$). Eighty-three percent were White; 10.3% were African American; 8.5% were of at least partial Hispanic origin; 3.0% were Native American; and approximately 3% were members of other ethnic groups or chose not to answer the question. With respect to highest educational achievement, 11.2% did not graduate from high school; 39.8% were high school graduates; and 16.4% were college graduates.

Measures

The highly structured telephone interview was designed to collect information about several topics, including demographic characteristics, perceived health status, sexual and physical trauma, other trauma (e.g., accidents, disasters), and psychopathology. Demographic variables were measured using standard questions employed by the United States Bureau of the Census (1991) to catagorize age, education, and race.

Sexual Assault was determined by a positive responses to any of the following queries:

1. Has a man or boy ever made you have sex by using force or threatening to harm you or someone close to you? Just so there is no mistake, by sex we mean putting a penis in your vagina.
2. Has anyone, male or female, ever made you have oral sex by using force or threat of harm? Just so there is no mistake, by oral sex we mean that a man or a boy put his penis in your mouth or someone, male or female, penetrated your vagina or anus with their mouth or tongue.
3. Has anyone ever made you have anal sex by using force or threat of harm? Just so there is no mistake, by anal sex we mean that a man or boy put his penis in your anus.
4. Has anyone, male or female, ever put fingers or objects in your vagina or anus against your will by using force or threats?
5. Has anyone ever touched your breasts or pubic area or made you touch his penis by using force or threat of force?

Physical Assault was determined by a positive responses to any of the following queries: "Another type of stressful event women sometimes experience is being physically attacked by another person. (1) Has anyone—including family members or friends—ever attacked you with a gun, knife, or some other weapon, regardless of when it happened or whether you ever reported it or not? (2) Has anyone—including family members and friends—ever attacked you without a weapon, but with the intent to kill or seriously injure you?"

Women who responded affirmatively to one of these two questions were classified as having experienced a physical assault. Such assaults would be defined as aggravated assault under the criminal statutes of most jurisdictions in the United States.

Other Recent Trauma was defined as past year occurrence of any of the following: death of spouse or mate, divorce, death of close family member, experience of serious accident, serious injury or serious illness, natural disaster, seeing someone seriously injured or violently killed, any other situation in which the respondent feared that they would be seriously injured or killed. In addition, marriage and being fired from work were considered to be extremely stressful experiences and were included in this list.

Poor Health Status was determined by responses to the question: "Compared to other people your own age, would you say that your health is excellent, very good, good, only fair or poor?"

Women who responded with the any of the first three choices were classified as having "good" health status reports, and women who responded that their health was "only fair" or "poor" were classified as having "poor" health status reports.

Income was categorically differentiated into three levels and referred to total household income: 0–$10,000, $10,001–25,000, and $25,000+. These cutoffs were selected because prior research indicated that women earning less than $10,000 annually are at increased risk of assault and assault-related psychopathology (e.g., Bachman and Saltzman, 1995; see also Reiss and Roth, 1993).

PTSD Avoidance Symptom Presence was determined by a positive response to any of the following PTSD avoidance symptom queries in the past year time frame: "Has there been a period of a month or more in which: (a) you deliberately tried very hard not to think about something that had happened to you? (b) you stopped caring about activities in your life that used to be important to you? (c) you lost interest in activities which usually meant a lot to you? (d) you went out of your way to avoid certain places or activities which reminded you of something that had happened in the past? (e) you deliberately tried to avoid having any feelings about something that happened to you? (f) you felt cut off from other people or found it difficult to feel close to other people? (g) it seemed you could not feel things anymore or that you had much less emotion than you used to?"

PTSD Arousal Symptom Presence was determined by a positive response to any of the following PTSD arousal symptom queries in the past year time frame: "Has there been a period of a month or more in which: (a) you had trouble concentrating or keeping your mind on what you were doing, even when you tried to concentrate? (b) you felt you had to stay on guard most of the time? (c) you had difficulty falling asleep or staying asleep? (d) unexpected noises startled you more than usual? (e) you found yourself suddenly feeling very anxious, panicky, or fearful? (f) little things bothered you a lot or could make you very angry?"

PTSD Re-Experiencing Symptom Presence was determined by a positive response to any of the following PTSD re-experiencing symptom queries in the past year time frame: "Has there been a period of a month or more in which: (a) you kept having unpleasant memories, or saw them in your mind? (b) you had repeated bad dreams or nightmares? (c) disturbing memories kept coming into your mind whether you wanted to think of them or not? (d) you felt a lot worse when you were in a situation that reminded you of something that had happened in the past? (e) you found yourself reacting physically to things that reminded you of something that had happened to you in the past—like breaking out in a sweat,

breathing heavily or irregularly, or heart pounding or racing? (f) you had a flashback—that is—have you ever had an experience in which you imagined that something that happened in the past was happening all over again?

Current Depression was determined by the NWS structured clinical interview measuring *DSM-III-R* defined major depressive disorder limited to the past month.

Procedure

Following selection of households, a telephone call was placed to the randomly generated number. In households with more than one adult woman, the most recent birthday method was used to select one woman for interview. Female interviewers collected all data by using a computer-assisted telephone interview (CATI) procedure in which each question in the highly structured telephone interview appeared on a computer screen and was read verbatim to respondents. Supervisors listening to real-time telephone interviews while monitoring the interview on their own computer performed random checks of each interviewer's assessment behavior and data-entry accuracy at least twice during each shift. When an error was detected, supervisors required its correction and discussed it with the interviewer after the interview. If the error was detected again in following interviews, the interviewer was removed from the study.

RESULTS

Data are presented in terms of prevalence rates and odds ratios. Univariate odds ratios were determined through chi-square analysis and multivariate odds ratios were determined through logistic regression by using the SPSS statistical package for Windows, Version 6. For all analyses, an alpha level of .05 was chosen a priori.

Table I provides the results of univariate analyses, describing the prevalence of all major variables in the study, in terms of age. Age-based risk associated with each variable is also provided. Note that older adult women were at significantly reduced risk of PTSD avoidance, arousal, and re-experiencing symptoms. Older adults were also significantly less likely to report depression or experience any type of assault or past year trauma.

Results of univariate risk analyses for the subsample of older adult women (Table II) indicated that both forms of assault and recent trauma were typically associated with increased risk of PTSD and depression symptoms. Income and health status were, in large part, not associated with increased psychopathology. In younger adults, lower income, in addition to assault and recent trauma, was associated with greater likelihood of PTSD and depression symptoms (Table III). Self-reported poor health status was associated only with increased risk of PTSD avoidance symptoms.

Logistic regression analyses (Table IV) were conducted separately for older adults and younger adults in order to identify different levels of risk associated with predictor variables. Because some participants were missing at least one data point, the *N* for logistic regression analyses for older adults was 469, and the *N* for younger adults was 2,521. Past year trauma was the primary risk factor for PTSD avoidance, PTSD arousal, and PTSD intrusion symptoms in older adults and younger adults. Prior sexual assault increased risk

Table I. Univariate Odds Ratios and Prevalence of Study Variables by Age Group

	PTSD avoidance			PTSD arousal			PTSD re-experiencing			Current depression			Low income			Poor physical health			Sexual assault			Physical assault			Past year trauma		
Age	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR
Older	16.6	91	0.41***	21.1	116	0.47***	11.5	63	0.42***	2.2	12	0.38***	24.7	116	***	10.7	59	ns	7.8	43	0.32***	5.5	30	0.40***	42.8	235	0.63***
Younger	32.9	877		36.2	965		23.8	634		5.6	150		16.3	412		10.0	268		21.2	566		12.6	336		54.2	1446	

*** $p < .001$. $df = 1$.

Table II. Univariate Odds Ratios and Prevalence of Study Variables Within the Subsample of Older Adults

	PTSD avoidance			PTSD arousal			PTSD re-experiencing			Current depression		
Risk factor	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR
Income[a]												
0–$10 K	23.3	27	ns	22.4	26	ns	21.6	25	1.70**	3.4	4	ns
$10 K–25 K	18.1	34		25.0	47		10.6	20		2.1	4	
$25 K+	15.2	25		20.6	34		9.1	15		1.2	2	
Health status												
Poor	15.3	9	ns	15.3	9	ns	15.3	9	ns	3.4		
Good	16.7	82		21.8	107		11.0	54		2.0		
Sexual assault												
Yes	37.2	16	3.41***	37.2	16	4.64**	25.6	11	3.00**	7.0	3	4.14*
No	14.8	75		19.8	100		10.3	52		1.8	9	
Physical assault												
Yes	36.7	11	3.18**	33.3	10	ns	46.7	14	8.39***	10.0	3	6.03**
No	15.4	80		20.4	106		9.4	49		1.7	9	
Other trauma												
Yes	26.0	61	3.39***	26.8	63	1.80**	20.0	47	4.66***	4.3	10	6.93**
No	9.6	30		16.9	53		5.1	16		0.6	2	

[a]Risk associated with Income was determined through logistic regression, and odds ratios for this variable are reported per 1 income level decrease with greater risk at lower income levels. Hence the risk associated with the comparison between level 1 and level 2 = OR, and between level 1 and level 3 = OR^2.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. $df = 1$.

in older adult women only for PTSD avoidance symptoms, whereas physical assault and lower income increased risk of experiencing PTSD intrusion symptoms. For younger adults, however, both forms of assault were associated with increased likelihood of all categories of PTSD symptoms, as well as depression. In addition, low income was associated with increased risk of avoidance and depression symptoms in this age group.

Table III. Univariate Odds Ratios and Prevalence of Study Variables Within the Subsample of Younger Adults

	PTSD avoidance			PTSD arousal			PTSD re-experiencing			Current depression		
Risk factor	%	*n*	OR	%	*n*	OR	%	*n*	OR	%	*n*	OR
Income[a]												
0–$10 K	42.0	173	1.33***	44.9	185	1.24***	31.8	131	1.30***	8.0	33	1.47***
$10 K–25 K	34.5	315		36.1	330		24.3	222		7.2	66	
$25 K+	28.8	345		33.7	403		21.1	252		4.0	48	
Health status												
Poor	26.1	70	1.43	32.5	87	ns	19.0	51	ns	3.4	9	ns
Good	33.6	807		36.6	878		24.3	583		5.9	141	
Sexual assault												
Yes	59.4	336	4.22***	62.9	356	4.16***	43.1	244	3.23***	11.1	63	2.90***
No	25.7	541		29.0	609		18.5	390		4.1	87	
Physical assault												
Yes	68.5	230	5.65***	68.8	231	4.79***	52.7	177	4.60***	11.3	38	2.53***
No	27.7	647		31.5	734		19.6	457		4.8	112	
Other trauma												
Yes	44.1	637	3.23***	47.6	689	***	32.4	468	3.05***	7.0	101	1.80***
No	19.6	240		22.6	276		13.6	166		4.0	49	

[a]Risk associated with Income was determined through logistic regression, and odds ratios for this variable are reported per 1 income level decrease with greater risk at lower income levels. Hence the risk associated with the comparison between level 1 and level 2 = OR, and between level 1 and level 3 = OR^2.
$^{***}p < .001$. $df = 1$.

Table IV. Multivariate Prediction of Psychopathology by Income, Health Status, Assault, and Other Recent Trauma: Logistic Regressions

	Older adults				Younger adults			
Variable	*B*	*SE*	Wald	OR	*B*	*SE*	Wald	OR
Odds of PTSD Avoidance Symptom Presence								
Income (3 level)	−0.20	0.16	1.56	ns	−0.16	0.06	6.15	0.86*
Health status	0.10	0.41	0.06	ns	0.29	0.16	3.10	ns
Sexual assault	1.02	0.37	7.47	2.77**	1.20	0.11	123.0	3.32***
Physical assault	0.79	0.44	3.13	ns	1.34	0.14	93.75	3.82***
Other past year trauma	1.20	0.26	20.97	3.31***	0.95	0.10	93.65	2.58***
Odds of PTSD Arousal Symptom Presence								
Income (3 level)	−0.04	0.15	0.08	ns	−0.08	0.06	1.59	ns
Health status	0.52	0.41	1.60	ns	0.11	0.15	0.55	ns
Sexual assault	0.63	0.36	3.11	ns	1.20	0.11	123.34	3.31***
Physical assault	0.47	0.43	1.18	ns	1.20	0.14	75.50	3.33***
Other past year trauma	0.59	0.23	6.69	1.80**	0.93	0.09	98.80	2.54***
Odds of PTSD Re-experiencing/Intrusion Symptom Presence								
Income (3 level)	−0.48	0.19	6.15	0.62*	−0.13	0.07	3.75	ns
Health status	−0.21	0.45	0.22	ns	0.27	0.18	2.36	ns
Sexual assault	0.72	0.44	2.71	ns	0.96	0.11	74.76	2.61***
Physical assault	1.78	0.46	15.24	5.91***	1.15	0.13	75.82	3.16***
Other past year trauma	1.28	0.32	15.88	3.58***	0.88	0.11	65.45	2.40***
Odds of Current Depression								
Income (3 level)	−0.41	0.43	0.90	ns	−0.30	0.11	6.98	0.74**
Health status	−0.65	0.85	0.58	ns	0.52	0.35	2.19	ns
Sexual assault	1.09	0.77	1.96	ns	0.89	0.18	23.68	2.42***
Physical assault	1.46	0.78	3.48	ns	0.52	0.21	5.77	1.67**
Other past year trauma	1.34	0.83	2.64	ns	0.30	0.19	2.57	ns

Note. $N = 469$ for older adults; $N = 2521$ for younger adults.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

DISCUSSION

Consistent with past research (Bachman and Saltzman, 1995; Muram *et al*., 1992; Norris, 1992), the overall reported rates of sexual and physical assaults were lower in older compared to younger women. In addition, rates of PTSD symptoms and depression in response to trauma were also lower for older, relative to younger women. A remarkably large proportion of women from both age groups indicated that they were in "good" health, with only about 10% reporting that their health status was "fair" or "poor."

When risk factors were considered individually, low income was associated with greater rates of all forms of psychopathology in younger, but not older adults. Health status was not predictive of emotional problems for any age group. Both older and younger women who had been assaulted or who had suffered from a recent trauma were more likely to present with all forms of psychopathology.

A slightly different picture emerged when risk factors were considered in terms of one another in multivariate analyses. In these analyses, sexual assault predicted only PTSD avoidance in older adults, but predicted all forms of psychopathology in younger adults. Similarly, physical assault predicted only PTSD intrusion symptoms in older women, but all forms of PTSD symptoms and depression in younger women. Health status was not associated with any increased risk of psychopathology, and low income predicted increased

avoidance and depression only in younger women. Recent trauma was associated with all forms PTSD symptomatology, but not depression for either age group.

Given their increased risk of developing physical problems secondary to trauma (Bachman *et al*., 1998; Muram *et al*., 1992), the observation that older adults suffer fewer negative emotional effects following assault is somewhat counterintuitive. One explanation for this apparent resiliency centers on possible "inoculation effects" resulting from past encounters with, and successful resolution of, deleterious trauma sequelae (Kato *et al*., 1996; Norris and Murrell, 1988). This explanation seems unlikely for two reasons: first, repeated exposure to traumatic events seems to lead to sensitization, not desensitization (Herman, 1992; Solomon and Prager, 1992); second, older adults report fewer, not greater numbers of assaultive experiences.

Although it may be the case that sexual and physical assaults are relatively weaker predictors of PTSD and depression in older adults, it is quite possible that these results are due to previously documented reporting biases in elderly populations. Specifically, older adults are less likely to acknowledge criminal victimizations (Falk *et al*., 1997). This nonreporting bias is maintained even when *perpetrators* themselves report assaultive behavior (Pillemer and Finkelhor, 1988). Falk *et al*. propose that older adults often do not acknowledge or report criminal victimizations because they may fail to interpret the event as a crime and they may fail to perceive themselves as victims. Empirical evidence supports the hypothesis that older adults may fail to perceive certain events as assaults. For instance, older adults score higher on rape myth acceptance measures, indicating that they do not consider many instances of coerced sexual contact to be rape or sexual assault (Kalra *et al*., 1998). Even if the event is recognized as sexual assault, individuals who score higher on measures of rape myth acceptance may feel that they are to blame for the event, which could also result in a failure to report being assaulted.

In addition to a decreased likelihood of recognizing and reporting assaults, older adults may minimize reports of psychological symptoms. Recently, researchers have questioned the lower prevalence of depression in elderly populations, as several studies show these low estimates are due to differences in the manifestation and reporting of depressive symptoms across age groups. For instance, older adults are less likely to report suicidal ideation, despite the fact that suicide rates are higher in older adults, particularly men, relative to younger adults (Katona, 1995). Similarly, older adults who are depressed are less likely to report subjective sadness, guilt, or to acknowledge psychological problems. Instead, depressed older adults complain of physical symptoms, sleep disturbances, and psychomotor agitation (Katona, 1995; Knaeuper and Wittchen, 1994; Lasser *et al*., 1997).

In addition to mislabeling assault or reporting different psychopathological symptoms than younger adults, a third possible explanation for lower assault prevalence and postassault psychopathology in the elderly population involves differences in the sociological development of older adults. This development occurred at a time when discussion of personal and emotional problems was passively, and even actively, discouraged. Thus, it may be the case that older adults experience similar levels of negative affect following violence, but choose not to report these events or symptoms because of shame, embarrassment, and fear of stigmatization (Falk *et al*., 1997). Indeed, underreporting of assault events seems likely in light of the fact that older adults were younger adults once, and should have shared age-specific risk factors at that time, barring any cohort effect. In addition, even if risk of assault is reduced in old age, it is greater than zero, and one would expect greater

lifetime prevalence of assault in older adults simply because they have lived longer and have had more time to be assaulted. Underreporting of symptoms and events might also be a function of the types of assessment indices used. As Hersen and Van Hasselt (1992) illustrated, measures of anxiety used in studies of older adults have not been validated for that population.

The latter explanation of age-based differences in posttraumatic psychopathology leads one to conclude that alternative assessment measures, or alternative interpretation of existing measures may be required for older adults. Measures that include relatively more somatic indices of negative affect and measures that include very specific, behaviorally defined (i.e., generationally, socially, or culturally unbiased) descriptions of traumatic events and emotional responses should be used in studies of elderly crime victims. Results of the present investigation corroborate past research in documenting lower rates of exposure to sexual and physical assaults, as well as lower levels of psychopathology subsequent to assault. Future research in this area is needed, however, to determine the extent to which these findings may simply be a function of differences between younger and older adults in the manifestation of symptoms and their propensity to report assault and related psychological impairment.

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